

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Application No. 10/000,219
Attorney Docket No. Q67539

REMARKS

Upon entry of the present Amendment, claims 1, 3-7, 9-12 and 15-38 are all the claims pending in the application. Claims 1, 7, 21, 24, 27 and 30 are amended and new claims 37-48 are added. No new matter is presented.

As a preliminary matter, Applicant again notes that the Examiner has not returned the form TO/SB/08 submitted with the Information Disclosure Statement of January 20, 2004. The Examiner is kindly requested to initial and return the form PTO/SB/08 in the next action.

The prior art rejections are summarized as follows:

1. Claims 1, 4, 5-7, 10-12, 17-26, and 33-36 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over Chen (U.S. Patent No. 6,368,233).
2. Claims 27-29 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over Peterson (U.S. Patent No. 6,339,869).
3. Claims 1, 3-7, 9-12, and 15-23 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Minabe (U.S. Patent No. 5,961,394) in view of Shaw et al. (U.S. Patent No. 5,423,535, hereinafter "Shaw").
4. Claims 30-32 and 34 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over Galy (U.S. Patent No. 5,971,867).

The outstanding grounds of rejection are traversed, as discussed below.

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Claim Rejections - 35 U.S.C. § 102/103

Claims 1, 4, 5-7, 10-12, 17-26, and 33-36 as allegedly anticipated by or obvious over Chen.

As demonstrated by the following, Applicant submits that Chen neither anticipates nor teaches all the limitations defined by these claims. For instance, claim 1 defines A golf club of wood-type having a hollow head body, comprising, *inter alia*, a shaft; and a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a striking face member is disposed, the striking face member including a plurality of metal pieces. Further, claim 1 recites the feature of the plurality of metal pieces are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the striking face member.

Initially, Chen does not reasonably suggest a striking face member including a plurality of metal pieces, as claimed. In addressing this limitation of claim 1, the Examiner relies on main piece 62 and arcuate piece 64. *See* Office Action at page 2. However, the arcuate piece of Chen cannot properly be interpreted as a striking face member. As shown in Figures 8 and 9 of Chen, the main piece of the golf club head includes recesses for contact with a golf ball. However, arcuate piece 64 is provided at the periphery of the actual striking surface, and merely provides a transition between the striking face provided by main piece 62 and the main body 50. Thus, Chen teaches a striking face having a single piece formed of a single material (i.e., titanium). As evidenced by the formation of the grooves solely on the main piece 62, the arcuate piece is

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not a “striking face”. Thus, Chen fails to teach or suggest a striking face, as claimed, which includes a plurality of metal pieces.

Further, in addition to failing to teach the striking piece with a plurality of metal pieces, Chen also fails to teach or suggest the plurality of metal pieces are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the striking face member. Applicant notes that this limitation requires both fixing of the plurality of metal pieces by laser welding and then performing press forming on the plurality of metal pieces that are fixed by laser welding to form the curved surface portion. In the grounds of rejection, the Examiner simply alleges that manufacturing methods such as rolling, plastic forming, post-machining, press forming and laser welding of the face member are “well known in the art”. *See* Office Action at page 2. Chen, however, does not suggest that the main piece 62 and the arcuate piece 64 are laser welded, as claimed, nor does Chen suggest that the main piece and arcuate piece are press formed to form a curved surface portion after being laser welded. This deficiency cannot simply be ignored. The unsupported allegation that process limitations are “well known” is insufficient to establish *prima facie* obviousness with respect to modifying the actual disclosure of Chen.

Moreover, the structure of the striking face member is clearly different from the striking face member taught by Chen. Nowhere does Chen teach that any portion of the golf club head is laser welded, as required by claim 1. High energy welding, such as laser welding, has a feature that weight does not change, since a welding rod is not used as with conventional welding. That is, only a welding body and a welded member are melted and fixed. Instead, a gap between the

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welding body and the welded member must be extremely narrow. Thus, it is quite difficult to fix each member by laser welding after shaping.

The present application discloses a method including punching out a member from a sheet, performing laser welding and then performing plastic deformation of the laser welded member. For example, when press forming or forging is applied to parts for a wood club, a thin sheet has the property of springback. It is difficult to make parts exactly the same form, since each part has a different warp, and gaps between parts vary.

Another feature of the high energy welding is that heat influence to the periphery is small, since a width of welding is adjusted and the welding body and the welded member "melt" at a portion where the body and the member are contacting each other. In contrast, conventional welding involves the formation of a bead along the welding joint. This distinction is significant for a wood golf club.

For instance, when the welding is performed by forming a bead by a welding rod, on left and right sides of the bead a surface sink (i.e., a thin portion formed along the bead) occurs. The present application can be applied to a quite thin part of metal, such as a wood golf club, or in one exemplary embodiment, the driver head of a wood golf club.

Moreover, as Applicant previously noted, the Examiner's statements further evidence differences between laser welding and conventional welding. *See* Response of July 22, 2005 at pages 5-6. Specifically, the Examiner contends:

"Examiner agrees that there [are] several distinct advantages of using laser welding of metal club parts such as small affect heating

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zone, which minimizes corrosion and cracking, and the precision of laser welding provide a smooth and continuous weld.”

See Office Action of May 23, 2005 at page 7.

Chen does not suggest that laser welding is performed, as claimed, and that press forming is performed on any laser welded pieces of a striking face member. Rather, Chen suggests that the pieces of the golf club head are simply “welded” together. However, as demonstrated above, laser welding provides a product with distinct structural features from conventionally welded pieces. Further, laser welded pieces are then press formed to provide a curved surface portion. Thus, Chen neither anticipates nor suggests all the limitations of claim 1. Accordingly, reconsideration and withdrawal of the rejection of claim 1 is requested.

With respect to claim 7, Applicant submits that the above arguments are equally applicable because Chen similarly fails to teach or suggest *at least* the features of the striking face member including a portion formed through plastic working of a compounded metal plate fabricated through joining a plurality of metal pieces made of forged or rolled material by laser welding and the compounded metal plate is fabricated by fixing together by laser welding the metal pieces so that the metal pieces appear on an outside common surface of the striking face member of the head and the plastic working is performed on the compounded metal to form a curved surface portion of the striking face member.

As noted above, Chen teaches that the striking face of the golf club head is formed only of titanium, and therefore fails to suggest the compounded metal plate that is fabricated through joining a plurality of metal pieces. Further, Chen does not teach or suggest laser welding of a

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plurality of pieces for the compounded metal plate on an outside common surface, nor does Chen suggest plastic working of the laser welded structure of the compounded metal plate to form a curved surface portion in the manner claimed. Accordingly, reconsideration and withdrawal of the rejection of claim 7 is requested.

For similar reasons, Applicant submits that independent claims 21 and 24 are allowable *at least* because the features of the plurality of metal pieces fixed together by laser welding and press forming performed on the plurality of metal pieces that are fixed together by laser welding to form a curved surface of the outside common surface, as in claim 21, and the crown member, as in claim 24, are not taught or suggested by Chen. Accordingly, reconsideration and withdrawal of the rejection of claims 21 and 24 is requested.

Further, Applicant submits that dependent claims 4-6, 10-12, 17-20, 22-23, 25-26, 33-40 and 43-46 are allowable at least by virtue of depending from claims 1, 7, 21 and 24, respectively.

Claims 27-29 as allegedly anticipated by or obvious over Peterson

With respect to independent claim 27, Applicant submits that Peterson neither teaches nor suggests all the claim limitations. Claim 27 defines golf club of wood-type having a hollow head body, comprising, *inter alia*, a shaft; and a metal head attached to the shaft, wherein the metal head comprises a body having an opening in which a side wall member is disposed, the side wall member including a plurality of metal pieces. Claim 27 further recites the feature of the metal pieces appear on an outside surface of the side wall member and are fixed together by

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laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the side wall member.

Even assuming the skirt 30 and detachable cap 36, which the Examiner analogizes to the side wall member including a plurality of metal pieces, are welded together, Peterson fails to suggest at least the feature of the metal pieces being fixed together by laser welding and the press forming performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the side wall member. As discussed above with respect to Chen, laser welding provides structural characteristics of metal pieces that are joined by the laser welding which are clearly distinct from a conventional weld. Peterson does not suggest that the cap is laser welded to the skirt.

Moreover, Peterson teaches that the cap 36 may be either “cast at the same time” as the one piece body and then cut out, or Peterson teaches that the cap can be constructed “separately” from the body 32. *See* Peterson at col. 6, lines 29-35. Thus, Peterson’s teaching of either casting from the same material or separately constructing the cap is inconsistent with the claimed laser welding of the plurality of metal pieces and then press forming the metal pieces that are fixed by laser welding to form a curved surface portion. Indeed, as taught by Peterson, in order for the cap to be produced of a different material, then the cap would be separately constructed and then welded. Peterson therefore does not suggest the press forming of the laser welded pieces to provide the curved surface portion.

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Accordingly, reconsideration and withdrawal of the rejection of claim 27 is requested. Further, Applicant submits that dependent claims 28-29, 41 and 47 are allowable at least by virtue of depending from claim 27.

Claims 30-32 and 34 as allegedly anticipated by or obvious over Galy

With respect to independent claim 30, Applicant submits that Galy fails to teach or suggest all the claim limitations. For instance, claim 30 defines a golf club comprising a sole member which includes a plurality of metal pieces, wherein the metal pieces appear on an outside surface of the sole member and are fixed together by laser welding and press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion of the sole member.

However, Galy neither teaches that metal pieces are fixed together by laser welding, nor does Galy teach that press forming is performed on the plurality of metal pieces that are fixed together to form a curved surface portion, as claimed. Indeed, Galy teaches that an arc-shaped portion 32 is separately formed and then attached to the sole plate 11. *See* Galy at col. 4, lines 42-59. There is no suggestion that the arc shaped portion is laser welded, as claimed, and press forming is then performed on the laser welded structure. In addition, Applicant submits that the above arguments regarding laser welding and press forming of the laser welded member, as discussed above with respect to Chen, is likewise applicable to Galy.

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Accordingly, Galy fails to teach or suggest all the limitations of claim 30, and reconsideration and withdrawal of the rejection is requested. Further, Applicant submits that claims 31-32, 34, 42 and 48 are allowable at least by virtue of depending from claim 30.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 3-7, 9-12, and 15-23 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Minabe in view of Shaw. Applicant respectfully traverses.

In the grounds of rejection, the Examiner alleges that Minabe discloses a wood type golf club head comprising a face member, a shaft attached to the metal head wherein the metal head comprises a body having an opening in which a striking face member is disposed. However, the Examiner concedes that Minabe fails to disclose the striking face member including a plurality of metal pieces. *See* Office Action at pages 3-4.

To compensate for this deficiency, the Examiner relies on Shaw, which is alleged to teach a metal face plate that can be made of one or more components. Previously, Applicant noted that Minabe teaches a wood type golf club in which the face member 10 is formed from a single piece of metal. Further, Shaw teaches an iron golf club in which the striking face may have multiple components.

Additionally, Applicant noted that Shaw does not disclose any embodiments other than iron-type golf clubs. The reference does not mention putters, nor does the reference mention wood-type golf clubs. The actual scope of the teaching of Shaw is clearly evidenced by the disclosure of the reference itself. Shaw explicitly states, "An object of the present invention is to

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improve the performance characteristics of *golf irons*.” (emphasis added). See Response of July 22, 2005 at pages 9-10.

In the Office Action, the Examiner responds by alleging as follows:

“With respect of that the Shaw’s reference is directed to ‘golf irons’ not wood-type of golf clubs, Examiner respectfully disagrees. Shaw discloses the ‘head structure of golf clubs, particularly, golf irons and is directed more particularly to club heads with varying specific gravity’ (Col. 1, lines 16-20).”

See Office Action at page 7.

Contrary to the Examiner’s rationale, Shaw’s statement of the field of the invention is not evidence that the actual disclosure of welding multiple pieces of a face member of an iron golf club is applicable to a wood club head, as in Minabe. Indeed, the Shaw’s statement of the field of invention evidences a *narrowing* of the type of iron golf club heads to which the disclosure applies (i.e., iron club heads with varying specific gravity). This statement in Shaw does not support expanding the actual disclosure of the reference beyond what the reference itself contains. As noted previously, the reference does not mention putters, nor does the reference mention wood golf club heads.

In addition, applicant submits that the above arguments regarding the structural distinctions and the insufficiency of the allegations that such process are “well known” regarding a laser welded member and subsequently press forming or plastic forming the laser welded member to provide a curved surface member, such as the striking face member of claims 1 and 7, and the plurality of metal pieces on an outside common surface as defined by claim 24, are

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equally applicable to the present grounds of rejection. Thus, Minabe and Shaw fail to suggest all the limitations of these claims.

Further, Applicant notes that Shaw's welding of an iron golf club head necessarily involves a back portion which is not present in a wood golf club. *See* Shaw at Figs. 29 and 32. The present application discloses a method including punching out a member from a sheet, performing laser welding and then performing plastic deformation of the laser welded member. For example, when press forming or forging is applied to parts for a wood club, a thin sheet has the property of springback. It is difficult to make parts exactly the same form, since each part has a different warp, and gaps between parts vary. The grounds of rejection fail to establish how the teaching of an iron type striking face could be modified to be applied to a wood golf club head.

Also, in the Response of July 22, 2005 Applicant again noted that the combination of Minabe and Shaw was improper because Minabe clearly *teaches away* from modifying the face, side, top, or bottom surface of a golf club to include multiple pieces, as allegedly taught by Shaw, because Minabe explicitly discloses to use of a single piece for each surface. Further, Applicant noted that MPEP § 707.07(f) states that "[w]here the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it." However, in the present Office Action, the Examiner again fails to address the teaching away of Minabe.

Accordingly, the combination of Minabe and Shaw fails to teach or suggest all the features of claims 1, 7 and 21. Reconsideration and withdrawal of the rejection of these claims is

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requested. Further, Applicant submits that dependent claims 3-6, 9-12, 16-20, 23, 33-34, 37-39 and 43-45 are allowable at least by virtue of depending from claims 1, 7, and 21, respectively.

In addition, Applicant submits that dependent claims 3 and 9 are allowable because the combination of Minabe and Shaw does not suggest the features recited therein. Claim 3 depends from claim 1 and recites the feature of "the metal pieces have different thicknesses." Claim 9 depends from independent claim 7 and recites "the compounded metal plate is fabricated by fixing together metal pieces that have different thicknesses."

In rejecting these claims, the Examiner concedes that Minabe fails to disclose the features of claim 3 and 9. However, the Examiner alleges that Shaw, at col. 2, lines 39-63 teaches metal pieces of the face member having different thickness. *See* Office Action at pages 4-5.

Applicant respectfully disagrees with the Examiner's contentions that the features of claims 3 and 9 are suggested by the combination of Mianbe in view of Shaw. In this regard, Applicant notes that the Examiner alleges that "Shaw teaches the face-piece components may have a thickness variation in vertical and lateral planes and such geometric configuration facilitates proper weight distribution to the club head (Col. 2, lines 39-63)." However, the portion of Shaw relied upon by the Examiner does not mention any variation of thickness. Rather, Shaw merely teaches that "multi-component golf iron heads" each having one of more face-piece components of low friction and flexural modulus characteristics "minimize spin and maximize distance and straightness." *See* Shaw at col. 2, lines 39-43.

Moreover, Shaw refers to the thickness of the face component merely in reference to the specific gravity of face components for different irons. In this regard, Applicant notes that Shaw

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teaches that a “low specific gravity face piece component having a thickness which increases in the toe to heel direction provides main body mass for distribution in the toe of the head, and conversely, such a face-piece having a thickness which increases in the heel to toe direction provides main body mass for distribution in the heel of the head.” *See* Shaw at col. 3, lines 54-60. Thus, Shaw teaches that “the center of gravity can be located nearer the toe for the long irons and progressively nearer the heel for the short irons.” *See* Shaw at col. 3, lines 60-63.

Thus, contrary to the Examiner’s assertion, Shaw is not teaching that varying the thickness of different metal pieces of a striking face member for a golf club head provides proper weight distribution. Rather, Shaw is simply teaching that different clubs (i.e., long irons and short irons) can have a face piece with a thickness selected for a desired weight distribution. Therefore, the Examiner is misinterpreting the actual teaching of the Shaw reference and the rejection of claims 3 and 9 is improper at least because Shaw fails to teach that the metal pieces of a face plate have different thicknesses and the asserted motivation to combine the teaching of Shaw and Minabe is improper. Claims 3 and 9 should additionally be allowable for this reason.

New Claims

In order to provide additional claim coverage merited by the scope of the invention, Applicant is adding new claims 37-48. Applicant submits that these claims are allowable at least by virtue of depending from claims 1, 7, 21, 24, 27 and 30, respectively.

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Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: February 6, 2006

CERTIFICATION OF FACSIMILE TRANSMISSION

Sir:

I hereby certify that the above identified correspondence is being facsimile transmitted to Examiner **Thanh P. DUONG** at the Patent and Trademark Office on **February 6, 2006** at **571-273-8300 (Central Fax)**.

Respectfully submitted,



Brian K. Shelton